10/11/13 Agenda

- Section 3.4 day 1 - Slope

- Start Homework
  - Worksheet 7 - Slope

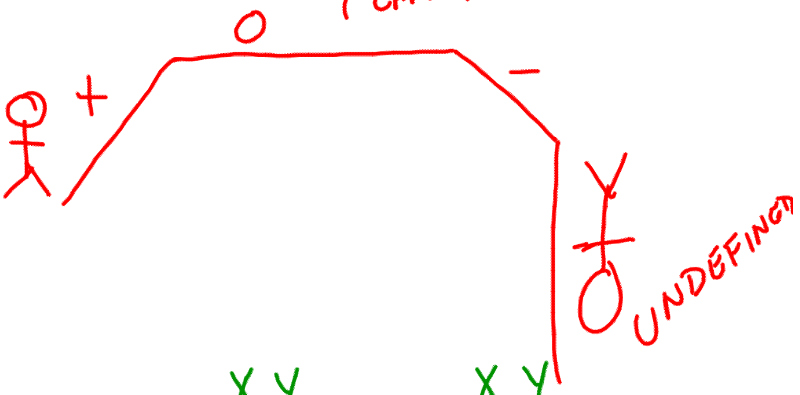
Slope

On a non-vertical line, slope is the ratio of vertical change (rise) to horizontal change (run).

It is also referred to as:
- Rate of change
- Steepness of a line

$A(x_1, y_1)$
$B(x_2, y_2)$

$$m = \frac{\text{RISE}}{\text{RUN}} = \frac{\text{CHANGE IN } Y}{\text{CHANGE IN } X} = \frac{\Delta Y}{\Delta X} = \frac{Y_2 - Y_1}{X_2 - X_1}$$



FIND SLOPE OF $\overleftrightarrow{AB}$ $A(6,4)$ $B(4,0)$

$X_1 Y_1$ $X_2 Y_2$

FORMULA

$$\frac{Y_2 - Y_1}{X_2 - X_1} = \frac{0-4}{4-6}$$

$$= \frac{-4}{-2}$$

$$m = 2$$

LARKIN METHOD

$A(6 \mid 4)$
$-\ B(4 \mid 0)$

$2 \mid 4$

$\hookrightarrow 2$

$$= \frac{4}{2} = 2$$

$$m = 2$$

WHICH LINE IS STEEPER?

LINE 1 (x_1, y_1) $(0, 3)$ (x_2, y_2) $(4, 5)$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{5-3}{4-0}$$

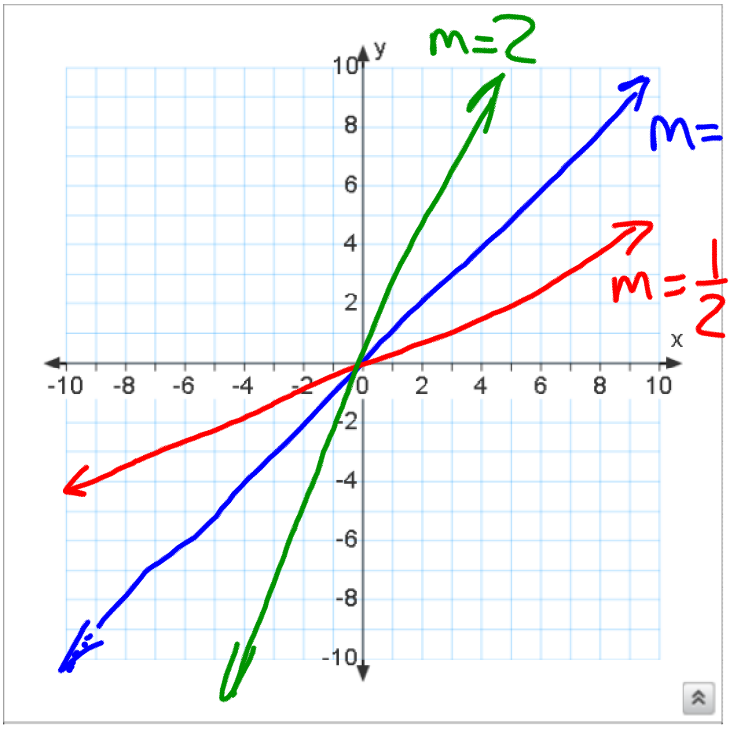
$$= \frac{2}{4}$$

$$= \frac{1}{2} \text{ or } .5$$

LINE 2 $(1, -1)$ $(5, 4)$

$$\frac{-4}{-4} = \frac{5}{4}$$

$m = \frac{5}{4}$ or 1.25



FIND THE MISSING COORDINATE:

$A(x,7)$ $B(4,-3)$ $m=-1$

$$(x,7)-(4,-3)$$

$$x-4 \mid 10$$

$$\frac{10}{x-4}=m$$

$$(x-4)\left(\frac{10}{x-4}\right)=(-1)(x-4)$$

$$10=-x+4$$

$$-4 \qquad -4$$

$$6=-x$$

$$-6=x$$

$$m=\frac{10}{x-4}$$

$$\frac{10}{(-6)-4}=\frac{10}{-10}=-1$$

WHAT IS SLOPE OF THIS LINE?

$$4x + y = 10$$

$-4x \qquad -4x$

$$y = -4x + 10$$

x	y
0	10
1	6
2	2